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THE EARLY LILIES.

SOON the white miracle of an Easter lily will be shining in every window, breathing its fragrant blessing of peace through the house. The lesson of growing these Easter lilies seems to have been one not easy for all to learn, but one so well worth while that the perseverance and study necessary to success have very generally been given it.

In furnace-heated, gas-lit houses the Easterlily grower needs extra vigilance, for a breath of coal gas, or a leaky pipe may

blacken the beautiful ivory buds so that they will never open.

Out doors, too, the early lilies have begun to thrust their spikes up through the earth, some thick and aggressive, like L. longiflorum, others timid and wand-like, as in the case of L. tenuifolium. Our White June or Madonna lily, L. candidum, has kept its leaves bright and green all winter, and now the stem begins to stretch upward, with the thought of blooming.

One reason why so many clumps of this lily fail to bloom, in the south, is that our changeable weather starts the stem to growing too early, and when the growth is young and tender down comes a frost to nip its terminal buds. I usually mulch my candidum lilies and plant them on northern exposures to keep them from starting too early.

A Pennsylvania garden, that I know, has

a thick row of Madonna lilies down a long border. I used to go purer than its clear golden yellow? And what a graceful, pera quarter of a mile out of my way to see it nearly every morning. In the sunshine it was a shimmering wave of pearl and gold and green; at night a radiant, fragrant ghost, with rustling, whispering garments and nimbus of moonlight.

The Harrisii and Longiflorum lilies bloom earlier than the Madonna lily when planted out of doors, but I have never yet seen them naturalized in such large clumps as to produce equal effects.

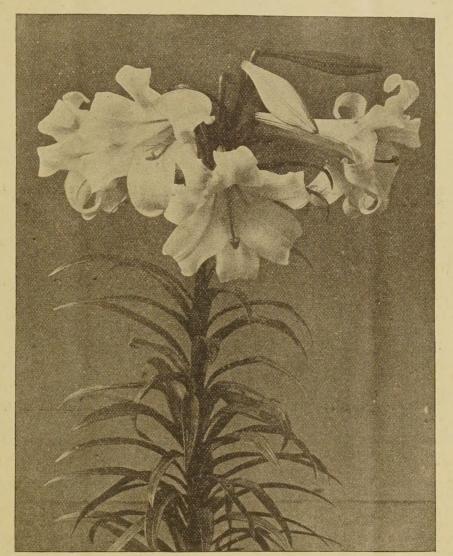
The little coral lily of Siberia, L. tenuifolium, lights a bright little blaze of glowing scarlet blossoms early in the chill, fickle month of May. The shape and habit of the flowers is both piquant and graceful. Next to candidum this is my favorite among all the early lilies. L. pardalinum, a wild mountain native, has something of the same shape, but its scarlet petals have an orange base, with dark spots for embroidery. This little lily is one of the easiest wildings to transplant, and is

often found in southern gardens.

Lilium parvum is a sturdy-growing, freckle-faced little flower that we love for its cheeriness, even if its orange-vellow dotted surface is not exceedingly beautiful.

Then comes a host of umbellatums. The way these lilies spread and enlarge their borders in southern gardens is alarming. In a few years one bulb will form a clump a foot across, and be a gay mass of flowers. They are ordinarily planted too shallow, so that the flower stems do not grow tall or carry many flowers each. But this does not keep them from spreading and blooming. The dark red sorts are the finest.

One dear old flower that we have always called a lily through courtesy and association, I must mention along with the others, and this is Hemerocallis flava, the lemon lily of southern gardens. Is there any color brighter and



Easter Lity.

LILIUM HARRISII.

fectly shaped flower it is! Great clumps of it have formed among our beds of iris, and as they bloom at the same time the contrast of blue and gold is very beautiful.

L. Canadense, our wild yellow lily, is a pretty, graceful little flower that is quite capricious about its time of blooming, sometimes waking up early and again sleeping until midsummer. The sleep is always a beauty sleep, for the later flowers seem richer and darker, perhaps through having small extent, should not only be free from mellow bed of sixteen or eighteen inches the fire and the zest of the summer infused into their veins.

We transplant the wild lilies whenever we find them, being careful to take up a good ball of earth' with the roots and to let the stem ripen with the bulb.

L. GREENLEE.

has but slight inequalies and sufficient fall this may be accomplished by surface drainage, but if level, or nearly so, or if heavy, or composed largely of clay, it buildings, should be away from them on

water on all ordinary occasions, but also in depth. The grass on land prepared in be capable of passing it off, or away, even this manner will stand a much heavier during the heaviest rain falls. If the land summer drought without suffering than it will on shallow-fitted ground.

> GRADING. The general slope of the lawn surrounding residences, or other



From a photograph

MAKING A LAWN.

HE beauty of a verdant landscape appeals to the most careless observer, and the real nature lover enjoys it with the keenest sensibilities. A lawn whether it be but the small plat of the village lot or the broader area of the suburban villa, or the still wider expanse of a noble park, is the necessary emerald settings of ornamental trees and shrubs and bright-hued flowers. The necessary measures for preparing and establishing a lawn are here considered.

THE DRAINAGE. A piece of ground to be laid down to lawn whether of great or small pieces of grass of a quarter of an acre, or less, surrounding suburban residences, underdraining will not in most cases he needed, but in relation to areas of greater extent, and especially park grounds, it should be a subject of prime consideration. To secure the rapid passage of water through the soil the ground should be subsoiled after the work of underdraining is finished. A subsoil plow should follow in the furrow after the surface plow, breaking up the hard under soil eight or ten inches below the bottom of the surface furrow, and thus securing a

LILIUM CANADENSE

should be underdrained with tile. For allsides, and if necessary some filling in on one or more sides may be needed, though it is to be supposed that the sites for buildings will, as a rule, be selected on elevated positions. The easy and natural undulations of the land on large lawns or park grounds, far from being objectionable, are desirable and graceful features. But slight and abrupt inequalities should be remedied by the removal of soil from prominent places to those which are below the general surface line.

> THE SOIL. After the general grade of the land is established the final preparation of the surface or seed bed is to be



From a photograph LILIUM PARDALINUM

made. In this work two principal points there is a smooth, even grade and a melare to be secured. The first of these is enrichment; the second is fine pulverization of the upper layer of soil to a depth of five or six inches.

The ground to be laid down to lawn should be in good heart. Land that has been in hoed crops for three or four years with annual manuring for the same is in a good condition for seeding, but it will be all the better if it can have worked in a good dressing of old manure. Fresh manure for this purpose is objectionable on account of the weed seeds it is almost sure to contain. After the grading work is done what manure is intended to be applied can be hauled on and spread, and the land cross-plowed only about six inches deep, so as to leave the manure near the surface and within easy reach of the young grass roots. Afterwards the ground should be harrowed until very fine. When this is done many little inequalities of surface will be seen which were not observable before, and these can be removed only by means of a shovel or hee and rake. After all is completed and very quickly and adds very much to an and the Atlantic coast of Georgia and

low seed bed the seeding can be made.

THE SEED. The principal variety of grass seed employed in lawn making, and which is entirely satisfactory for this purpose, is the Kentucky Blue Grass, or June Grass, Poa pratensis. This of itself will make a good lawn sod, but the seed is somewhat slow to start, and in some season and on some soils the surface will become hard and compact before the young plants are ready to come through, and there is then much loss. A mixture, therefore, of Blue Grass with Red Top, Agrostis vulgaris, is considered desirable, as the latter starts to grow more promptly, and is of itself a good lawn grass, as well as a good meadow and pasture grass. A proper proportion in the mixture is two of Blue Grass to one of Red Top. About sixty pounds of seed to the acre is desirable to form quickly a good sod, and even more is sometimes used. One pound of white clover seed added to the sixty pounds of grass seed is a favorite addition, as the clover starts

early display of verdure. In the lawn mixtures which seedsmen offer there are besides the above a certain proportion of Sweet Vernal grass and Sheep's Fescue, and some other good and quick growing kinds. It is an old notion, long since proved false, but which is still entertained, that the grass seed should be sown with oats or some other coarse grain, in order to protect it from the sun. This should never be done, for the coarser grain greedily appropriates the moisture of the soil, making the life of the desired grass more difficult. Even the addition to the grass seed of a small amount of Timothy or Herd's grass, Phlaeum pratense, that is sometimes used, is undesirable. The varieties of grass seed here advised are suitable for all of the New England and northern and middle and western States, and the more northern portion and elevated regions of the southern States, and it is also employed where artificial daily watering is employed, as in some parts of California.

Along the gulf coast, and in Florida

South Carolina, other varieties of grasses are used, as will be seen by the following letters lately received from Dr. William C. Stubbs, Director of the Experiment Station at New Orleans, and Professor J. S. Newman of Clemson College, South Carolina:

LETTER FROM DR. STUBBS.

In New Orleans the chief variety of grass which is used to make lawns is Festuca pratensis; many use Bermuda, which makes the best sward in the world, but is browned by frost. The lawns are formed of Festuca by sowing the seed; of Bermuda by turf, or by scat-

seed sown at this season of the year (December) will encounter the encroachment of our native grasses, which are nearly always fatal to the successful growing of that seed.

LETTER FROM PROF. NEWMAN, SOUTH CAROLINA.

Yours of the 2d instant received. In the coast and tertiary formation Bermuda grass (Cynodon dactylon) is the only turf-forming species, and is best for lawns with winter Vetch to give it a green cast in winter. The Bermuda affords a pleasant green all summer, and though the top is killed by frost, it is perennially-rooted. The Vetch reaches maturity early in May, but re-seeds itself and comes again early in the fall.

Previous to that time, also, the weather is nearly always favorable to working the land and putting it in proper condition for receiving the seed. The months of July and August may be considered as the best for doing the preparatory work of lawn-making with reference to seeding the last of August or early in September. But, if the ground is in readiness, March, April and May are also favorable to seeding, and the work is usually successful.

Sowing and Covering the Seed. Although there are seed-sowers for sow-



From a photograph

tering portions of the grass over a well prepared surface and pressing it in. It soon occupies the ground and makes a beautiful sward. Throughout the whole alluvial portion of Louisiana the same methods of lawn making are employed as at New Orleans, except outside of the city they frequently have Bermuda. Bermuda grass does not thrive anywhere in Louisiana; it will not do well in our soil on account of the prevalence of our native grasses, which have more vigor and persistency and soon destroy it after germination. Lawn making is done almost exclusively in this State during the months of September and October. Any grass

In the hill country orchard grass and clover, with tall meadow oat grass and perennial rye grass, make an excellent mixture for large woodland lawns or pastures. If fully exposed to the sun Bermuda mixed with Blue grass and Vetch is best. Texas blue grass, if set 12x12, makes a perennial sod in either section.

TIME OF SEEDING. The best season of the year for seeding a lawn is usually about the first of September. At that time, or soon after, there is commonly a succession of showery weather, and, as the ground is warm, the conditions are favorable for the quick germination of the seed.

LEMON LILY HEMEROCALLIS FLAVA

ing grass seed broadcast, yet this work is nearly always done by hand, at a time when there is little or no wind and, if possible, when there is a prospect of immediate rain. It is well to go over the ground twice—sowing half of the seed at first and then to traverse it in the opposite directions, scattering the remainder, and thus securing a more even distribution than by sowing all in once going over the ground. A very good operation after seeding is brushing in the seed—that is, a horse is hitched by a chain to the butt

end of a small sized tree, with all the limbs, branches and twigs left on, and is driven back and forth until the branches have swept over the whole surface, thus covering the seed lightly. Instead of using a brush a light harrow can be run over the ground. After brushing or harrowing, a heavy roller is run over the land, bringing the soil and seed in close contact and leaving a smooth surface over the whole ground. Experience has shown that on clayey grounds, or clayey shales that are apt to bake, rolling immediately after seeding is not advisable for the reason that the surface is made too compact and the young plants thereby prevented from pushing their way through

to the surface. In that case rolling can be postponed until the following spring; but on all sandy soils, and ordinary sandy loams, rolling should follow seed sowing.

Mowing. Grass seed sown in April or early in May will, in a good season, have started and made growth so that by the middle of July it may need its first clipping. If sowed in September, mowing may or may not be needed in autumn, the condition of the grass depending upon the state of the weather.

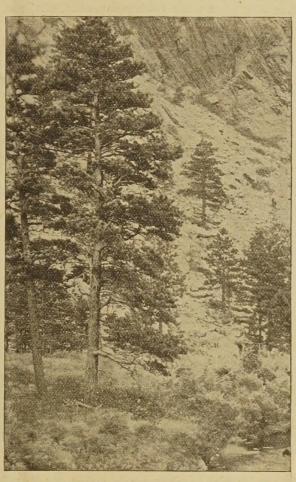
No matter how thoroughly the ground has been prepared, or how pure and clean the grass seed, weeds will appear and grow faster than the grass. This is because weed seeds are always in the soil, and always they are, to some extent, floating in the air. It may be necessary before using the lawn mower the first time to go over the ground with a scythe and cut the weeds. Most of the weeds that appear in a new lawn are of annual growth and disappear after the first summer; no attention, therefore, need be given them, as they will be kept down by the mowings, which should be repeated as often as the grass is high enough to clip.

THE AFTER-CARE. In the late autumn give the lawn a covering of well-rotted stable manure, spreading it evenly over the

ground, and let it be during the winter. Do not use coarse, fresh manure and litter, as this will bring a great many more weed seeds that will spring up the next season. If old, rotted manure cannot be supplied, then give a dressing of some good commercial fertilizer, at the rate of about two hundred pounds to the acre. It is advisable always to use such fertilizer instead of stable manure on lawns immediately adjacent to the house, as the disagreeable appearance and odor of the latter are quite objectionable in such a place.

Early in the following spring, after the

frost is out, rake over the lawn, fining and spreading evenly any of the autumn dressing that may remain on the ground and removing all sticks and stones. If any holes or depressions are found they should be filled up with soil, and if any spots are too high, or above the general surface, the sod can be removed, the ground lowered and the sod replaced. If spots of much size without grass appear, the surface should be loosened and raked over, and a new seeding be given. Soon after spring growth commences the perennial weeds will appear. Plantain and Dandelions are usually the worst, but Mouseear Chickweed and Sorrel are also fre- frosts, and such flowers! Beautiful and



ROCKY MOUNTAIN VELLOW PINE

Large growth of Rocky Mountain Yellow Pine in a deep canon. Larger tree over 100 feet high, and 16% feet girth six feet from the ground.

except by digging them out, one by one, the flowers be larger and the blooming a slow but effectual process.

"Now 'tis the spring, and weeds are shallow rooted; Suffer them now, and they'll o'ergrow the garden, And choke the herbs for want of husbandry."

As soon as the lawn has been raked over in the spring run the roller over it. Commence to use the lawn mower early, and before too much growth has been made. The clippings can remain on where they fall during the first and second summers, but afterwards they should be removed, leaving the lawn neater in appearance.

NOT A "FAD."

Thas been spoken of as "the sweet pea fad," but sweet peas have so many good qualities and have so long been dear to flower lovers, that the word "fad" oes not seem to apply to them. If theyd are increasing in favor, and are being more extensively planted, it is probably due to the improvement in the old and the introduction of new and beautiful varieties. What other flower has one-half the merits of the sweet pea? It is hardy, succeeds over a wide range of latitude and in almost every soil, flowers profusely from early summer until after severe quently prevalent. There is no way to diverse in color, exquisite in form, very

fragrant, long stems, making them desirable as cut-flowers; they also keep well after cutting, if cut when only one flower on the stem has opened, the remaining buds will expand after the stems have been put into water.

As decorated flowers, they are suitable for any place or occasion, wedding, funeral, or feast.

In regard to cultivation: The old rule, to sow the seed as soon as the frost is out of the ground, is a good one. Many advocate the trench method, others oppose it. I have always planted in shallow trenches, gradually drawing the earth up around the vines until they are hilled up a little, then mulched with fine, old stable manure. On sandy soil a mulch seems a necessity unless they are liberally watered every day.

Seed should be sown thickly in localities where cut-worms abound for they, too, have a fondness for sweet peas. The vines will do the best if left a foot apart; this will seem too much space to those who have been accustomed to leaving about an inch between the vines, but if given a foot of room they will throw out numerous branches close to the ground, and the vines will touch each other by the time they blossom. If given sufficient room the leaves will not turn yellow next the ground, as they will if planted too closely;

get rid of these disagreeable intruders they will also blossom more profusely, period prolonged.

> The flowers should be picked every day, that no seed may form, for accommodating and profuse in bloom as they are, sweet peas will not bear seeds and flowers at the same time, and with seeds as cheap as they are now, it does not seem to pay the amateur to sacrifice the baeutiful flowers for the sake of a few seeds. Frequent hoeing of the ground on each side of row to keep the soil loose is very desirable, and if this is done there will seldom or never be occasion I. McRoss. for artificial watering.

SEED PODS.

Down south they are planting peas, garden and sweet.

Some leucothöe sprays placed over my bureau at Christmas time have dried till they rustle like paper, yet their surface is as fresh and glossy green as ever.

The southern galax leaves have the same quality of remaining bright green when dry. They colored beautifully this year, too. Some leaves shade from dark maroon at the stem through crimson and scarlet to creamy yellow at end of midrib. Does everyone know that the galax has a beautiful wand-like spike of white flowers in April?

Some children that I know have been very happy over a clump of blue hepaticas

that they found in the woods, by their leathery leaves, and coaxed into bloom in a broken, blue bowl placed in the window. A glass bowl was turned over the blue one, part of the time, and they think this contributed to their success. It was a very pretty experiment.

A vase full of beautiful Mrs. Robert Garrett roses placed on my desk the other afternoon, almost made me forget the long day's hard work. Surely this is a true rosarian's triumph,-or the grower achieved wonders with the soil, fertilizers and atmosphere. The great half-blown buds kept their long, elegant shape, were full, deep and satiny in finish and quite, it seemed to me, as large as ordinary teacups; too big almost, I thought. The color was a soft light pink, with a warm tone that would hardly fade to dinginess. The petals looked so wide and thick; they remained fresh a long time, too. The only fault I found with the rose was that its fine stems did not carry the foliage close up under the flowers to form the rich green setting that adds so much to their beauty. I am outdoor treatment.

the Chinese primroses do not receive their meed of praise. Here in the city we see them smiling from almost every window-sill, and some unappreciative people have been unkind enough to call them common. There are some virtues that are, or should be, common, too, but people who lack them are little liked. If you study the pretty frills and fringes that border some of the single primrose flowers you will see that their broidery of colors is very uncommon. A flower with a rich creamy center will have an edge ruffled, fluted and fringed with 'salmon-pink, perhaps, and this salmon-pink edge will be

half a dozen different colors, all charm- and were growing fast when I left in Noing. The double white primroses are lovely and waxen; the single ones scarcely less so. How long and faithfully the primrose blooms! In this furnace-heated house four pots of primroses have been in bloom since November 20th, nearly two months! In planting primroses be careful to set the crowns a little above the soil, so that they will not be injured by

The household of which I am a member at present is very much interested in the forcing of Chinese lilies. A Chinese laundryman bestowed upon each of the younger members a fine bulb. The last one given was a Christmas present. At

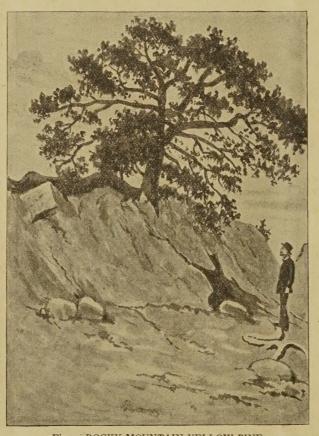


Fig. 1-ROCKY MOUNTAIN YELLOW PINE

Pinus ponderosa, var. scopulorum, growing in the crevice of a rock. anxious to know this rose under Along the top of the rock may be seen extending a root from the tree.

Every year deepens my conviction that the time of writing it has made more growth than either of the others, though planted two weeks later. But no buds show among the rich leaves, and I think it will be flowerless. 'Twas planted too late, and its leaves were growing when its owner received it. Though she kept it in the dark awhile the leaves continued to grow fast, the roots slowly. The first bulb planted has twelve fine shoots with buds in almost every one. It is as sound and healthy as a nut. The second has a fine growth of roots and nine shoots. It is growing in the moderate, sturdy way that means blossoms. This reminds me of the Chinese lilies that I left growing in embroidered with a curious tracing of my Carolina garden. They were some lines and dots in white, scarlet or crim- weaklings sent me to grow into good

son. The pattern may be duplicated in stock. They came up again in October vember. What has become of them, I wonder.

THE DAHLIA OF TODAY.

EGARDED as an old-fashioned flower, yet withal a most beautiful one, the dahlia has suddenly assumed a new role as the fashionable flower of today. Time has not dimmed its lustre, and those who have never lost sight of the lovely autumn bloomer have noted with growing interest the many new forms and colors that have developed under patient and skilful crossings. The dahlia lends

itself to many purposes and posi-

Prominent among its distinct forms are the Show dahlias. The plants are tall and branching in habit and produce flowers with fine forms and color. They will always be sought for their effectiveness as single specimens, for the background of masses, for admixture in borders, and for lighting up sombre backgrounds of evergreen or flowerless shrubs.

Among the choice varieties which I have tested, Ethel Vick holds first place. After a three years' trial, I find it established in luxuriant and symmetrical growth of plant; a profuse bloomer, flowers of the most perfect form, beautifully imbricated, and of the most exquisite sea-shell pink,lovely for cutting.

Princess has proved a grand flower for me, under a three years' test. A strong grower, with plenty of large, white flowers of the finest form, and borne well above the foliage on strong wiry stems.

Snow Cloud is in every way as desirable, while it bears the hot sun with the best.

Next to Ethel Vick, if I could have but another, is Ronald. One of the freest bloomers I

have ever grown. Color a deep, intense buff, the flowers of perfect form and so full that with mature development they become immense fluffy globes of tawny gold. Write it in your list if you are fond of rare and peculiar shades. James G. Blaine elicited more admiration from casual observers than any other, because of its exquisite form and color-intense, velvety crimson-no richer Dahlia can be found; vigorous and a free bloomer. Fanny Purchase, a bright clear yellow, is one of the finest of its color. Constancy, a beautiful shade of yellow deeply tipped with lake, is exquisitely beautiful. High Sheriff is a deep, velvety maroon, so intense as to appear black in the distance. Added to these prime favorites, others are Anna Warner, Emily Edwards, Firefly, Lady Allington, Prince Bismarck, Souvenir and William Dawkins.

In the dwarfs or bedders we find many of these rich colors repeated in flowers of large and perfect form on strong branching plants of dwarf growth, admirable for foregrounds in masses, or for bedding purposes. Crimson Bedder, Goldfinder, Margaret Bruant and Gem of the Dwarfs are among the very best.

The Pompon dahlias are exquisite with beautifully quilled petals and varied array of color. The plants are tall and robust. like the Show dahlias, but the flowers are much smaller, always perfectly formed, having beautifully quilled petals. They are profuse bloomers, making them doubly desirable, as they are great favor-

ites for cutting.

Two years ago I ordered Miss Champion, while still new and scarce. It is a treasure in any collection. Flowers very double, perfectly quilled, and a pure, light pink; an elegant flower for cutting. It is a free and persistent bloomer. Last year it bloomed along with Ethel Vick and Darkness, under the protection of overhanging evergreen boughs, for over a month after the rest were closed out by the frost. Lady Blanche, a pure white, quilled, on very long stems, is one of the very finest for cutting. White Aster, fringed, with Profusion and Golden Gem are among the

Cactus dahlias, with their sharply pointed and often twisted petals, are very popular and growing more in favor every year. Mrs. Tait is my favorite — pure white, very double and the tips of petals deeply toothed or fringed. St. Catherine and Baron Schroeder are rich specimens. Kynerith is grand for outdoor effects. Dahlias may be grown from

highly satisfactory, producing a great variety of self-colors, striped, spot- suffer for it if you want best results. In ted and tipped, and are mostly liked for sandy, or very light soil, plant deep, and cutting. Named tubers never disappoint, if reliable stock is procured. I have bought them of florists when they had been sprouted, robbed of their strongest shoots, for further propagation, and a portion of even a single tuber removed. These are the cheap (?) dahlias. I have long since ceased to give these deceptive announcements even a passing notice,

In warm localities plant in open ground soon as weather becomes settled, thinning the sprouts, or dividing tubers as appears best. In the north they should be started from the middle of March to the middle of April or they will be cut off by frosts

especially desirable for a fine collection in the height of their blooming season. Start in cold frame or plant in large boxes of loose, rich soil, without separating the tubers as the shoots cluster about the through the stem with a sharp knife, leaving one strong shoot to each available tuber. Grow the plants to a single stem; if more than one should appear, rub off all but the strongest. Some growers divide them into pieces corresponding to the number of eyes; but I have always found that the more support in the way of tuber, the stronger the plant and the richer the harvest of flowers. In rows or masses, plant three feet apart each way, in deep, rich soil. Give good cultivation and plenty of water in dry weather. Never let them illustration on page 69 shows a tree grow-



Fig. 2-ROCKY MOUNTAIN YELLOW PINE seeds which germinate freely. The same tree as shown in Figure 1, from the opposite side, and showing article, not being able to get a Seeds of single dahlias prove the root extending down over the rock, the whole length being 45 feet from photograph of it himself. It is the tree trunk to the point where it enters the ground.

mulch in dry weather. In ordinary soil, it is better to plant with the neck about three inches below the surface. Give them tall, strong stakes driven firmly into the ground, tie plants securely, following up as they grow, or they will be snapped off by heavy windstorms; side branches should be loosely stayed by tying also. The dahlia likes a sunny location. An eastern exposure is best in places subject to both hot sun and winds, but I have seen grand specimens grown on the north side of residences with a limited portion of sunshine morning and evening.

MRS. A. H. HAZLETT.

A CURIOUS TREE GROWTH.

THE Rocky Mountain Pine, Pinus ponderosa var. scopulorum, is one of the most familiar trees of the foot-hills and neck; as these appear, divide by cutting mountains of the Rockies. Its area of distribution is very widespread, its usefulness to the settlers great, and its variations of form in individuals is remarkable. In moist and sheltered situations, such as parks and cañons in the mountains, its growth is quite rapid and sometimes reaches over 150 feet in height and a diameter of six feet or more, while in open, rocky and exposed places it grows so slowly that some specimens I have examined had over 100 annual rings and yet were not six feet high and less than five inches in diameter at the ground. The

> ing near a stream in a deep, narrow cañon, its height over 100 feet, and girth six feet from the ground sixteen and two-thirds feet.

> The other illustrations show a tree growing on a rock in the foot-hills, southwest of the Black Hills, in Wyoming. It frequently happens that a seed will fall into a crevice in a rock and, there germinating, will exist for a time on the scanty food to be obtained there. After some years the tree seems to discover that nothing more can be obtained from the rock where it first came into existence, and begins to search for a better supply of food. Being unable to move itself to a more congenial spot a root is sent in search of the desired soil. Now, this root will continue to grow until it reaches the soil, and such roots may often be seen reaching down the side of a rock for many feet before they find soil. The one pictured in figures I and 2 is probably the most remarkable case on record. The writer is indebted to Prof. Nelson, of the Wyoming State University, for the engravings supplied with this exactly forty-five feet from the

trunk of the tree to the point where the root enters the ground.

The growth of the root must have required very many years before it reached the soil, and during this time the hair-like annual fibers, from the underside of the main root, found some scanty supply of nourishment from the moistened rock surface.

The tree itself, though probably four or five hundred years old, is not over fourteen or fifteen feet high, and very well illustrates the manner of growth of this pine in exposed situations.

It is certainly a most remarkable case of root growth.

Douglas, Wyo.

S. L.



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Obituary.

Mr. S. E. Meissner, of the well-known firm, Bush, Son & Meissner of Bushberg, Mo., died on the 2d of January.

Mr. Meissner was the writer of the Bushberg Catalogue and Grape Manual. This catalogue is an excellent work on the American varieties of the grape and their cultivation, and has alway been recognized as the highest authority on the subject. It has passed through several editions, revisions and enlargements. The business firm of his connection loses a most valuable associate, and American horticulture an active worker and reliable writer.

One of the great European horticulturists passed away on the 12th of last January. This was Jean Linden of Brussels. He was in the 81st year of his age. The fame of M. Linden as horticulturist and botanist is world-wide. In early life he explored a great part of South and Central America and Cuba, collecting plants and sending them to Europe. It is said that of palms and orchids alone he sent home 230 new species of the former and 656 of the latter.

After spending several years as director of the Zoological Garden at Brussels, and afterwards as a nurseryman in connection with Ambroise Verschaffelt, at Ghent, he eventually established at Brussels the great establishment known as the Horticulture Internationale. He carried on for a series of years the publications entitled Illustration Horticole and Lindenia. He

has been one of the ablest contributors fo horticultural literature during the past half century, and as such has been highly honored by many societies and many governments. His son, M. Lucien Linden, is the present conductor of the publication *La Semaine Horticole*, at Brussels.

Water Lilies and Lily Ponds.

Within the last decade the culture of water lilies in this country has greatly increased. About twenty years ago considerable interest began to be manifested in the culture of our native white water lilies, Nymphæa odorata and N. tuberosa, in small ponds and in tanks and casks. The interest slowly and gradually extended, but it is only since the discovery, within the last few years, that the beautiful Egyptian lotus, Nelumbium speciosum, was hardy in our ponds that a great movement began in the culture of water plants. Every year now appears to add to the interest in them, and a great variety of these beautiful plants are under cultivation all over the country. The great beauty of these water lilies cannot be imagined by those who have never seen them, and many will be surprised to learn that some of the handsomest of them may be easily raised in tanks formed by cutting hogsheads in two or even oil casks. Artificial ponds are constructed on lawns or on some suitable portion of residence grounds where considerable numbers of the plants can grow, and such ponds on larger scales form interesting features of large public parks. The cultivation and care of these plants is not difficult when their requirements are understood. Much of such information has been supplied from time to time by gardening publications, but recently a complete treatise on the subject has appeared under the title of the Water Garden, by William Tricker. In this work, which is profusely illustrated with plates, engravings and sketches, is embraced the construction of ponds, adapting natural streams, planting, hybridizing, seed saving, propagation, building an aquatic house. wintering, correct designing and planting of banks and margins, together with cultural directions for all ornamental aquatics. The author is thoroughly acquainted with his subject and explains fully all the details in relation to it. The illustrations are accurate and beautiful, and the work, as a whole, will satisfy the most exacting demands of those who wish to understand this subject. The book is issued by the publishers of American Gardening, the A. T. De La Mare Printing and Publishing Company, of New York, and from whom it can be procured.

Timely Seed Sowing.

The present month is one which should not be allowed to slip by—by those who wish to raise certain kinds of seeds.

Attention should be given now to sow-

ing seeds of the tuberous begonia, the dahlia, carnation, cyclamen and gloxinia, otherwise they will come on too late. Seeds of the Chinese primrose can be sowed this month for early blooming in the fall, and other sowings can be made in April and May to bring on new stocks of plants for winter blooming. Do not let it be forgotten that no other plant equals the Chinese primrose for freedom and abundance of bloom during winter. And the habit of the plant and the beauty of its foliage as well as flowers make it an ideal apartment plant adapted to various special uses. It is desirable, also, that this month should be sowed seeds of coleus, lantana and smilax. Impatiens sultani can be sowed this month for early plants, and during the next two or three months for a later supply.

Peas, both culinary and sweet peas, can be planted as soon in the spring as the ground can be made ready for them. Cool weather coming after planting will not hurt them. This is not true of beans, for they vegetate very quickly and the young plants are very tender and may be destroyed by even a light frost. Beans should be planted only when the weather has become settled and warm. Onion seed cannot be got in too early. The ground should be fitted for it as soon as it can be properly worked, but it is seldom in this region that either peas or onion seeds can be got in before some time in April, but further south their time is rapidly approaching. Of course the present is a time of great activity in frames and with the preparation of a great variety of plants under glass. Celery seed for early plants can be sowed in hot-beds any time during the month, as also cabbage and cauliflower.

Farmers' Bulletins.

Farmers' Bulletin No. 61, of the Department of Agriculture, is a very complete treatise by R. B. Handy, on the cultivation of asparagus, its diseases and insects, and the preparation of the produce and packing for market, and the processes of canning and drying.

Farmers' Bulletin No. 62, is on the subject of Marketing Farm Produce and has been written by George G. Hill, formerly manager and editor of the American Farmer, Illinois. The principal points are noticed in regard to the packing and packages for shipment and market of the different kinds of fruits and vegetables, and, also, butter, eggs, poultry and game.

Farmers' Bulletin No. 64 relates to the standard breeds and the management of ducks and geese, and is written by George E. Howard, Secretary of the National Poultry and Pigeon Association. A very practical treatise on the subject and handsomely and fully illustrated. All of the bulletins are sent free of charge to any address upon application to the Secretary of Agriculture, at Washington, D. C.

Notes From Our Readers.

It is always a pleasure to hear from our readers in relation to their garden experience. Probably there are very few who would not like to know what some of the readers of the MAGAZINE thought about such a plant or such a fruit or vegetable or about this or that kind of treatment. Well, dear reader, do you know that you have an experience of some kind, or with some plant, that others would like to hear about? Why not tell it? It is not necessary to attempt to write an "article." That is not what is wanted, but just a simple statement, in as few words as can be used to make the subject clear. We hope every month to have short statements to publish from our readers in regard to their plants or their gardens. Do not attempt too much; one point at a time is enough.

Again, there are many amateur photographers among our readers and the opportunity often presents itself to take a good picture of a plant or flower or fruit which would be worth publishing. May we not hope to receive many such photographs?

Catalogue of Fruits.

The Department of Agriculture, at Washington, D. C., has issued in a separate pamphlet the "Catalogue of Fruits recommended for cultivation in the various sections of the United States, by the American Pomological Society." The catalogue has lately been revised by a committee of the society of which T. T. Lyon was chairman. This catalogue is adapted to every part of the United States and is the highest authority on the value of the different varieties of fruits for particular localities, and every one engaging in fruit culture should have it as a guide. It is to be obtained by writing to the Department of Agriculture, Division of Pomology.

Horticultural Meeting.

The meeting of the Western New York Horticultural Society held in this city the last week of January proved to be highly successful and profitable. Some accounts of the doings and sayings there, as well as notes and extracts from some of the papers read, will be presented to our readers hereafter.

A Red Marechal Niel.

A seedling rose, produced by crossfertilizing Pierre Notting and Marechal Niel, is said to be very large, well shaped, full, and in flower like the yellow Marechal Niel. It is very sweet scented, and the coloris carmine-red It is a strong grower and blooms abundantly.



In this department we shall be pleased to answer any questions relating to Flowers, Vegetables and Plants, or to publish the experiences of our readers.

Inch Plant.

In February Magazine Letter-Box you mention ignorance of "inch plant." In some parts of New England tradescantia is only known by that name, presumably given because there is uniform width between rhe leaves of about an inch. You know the leaves appear on, "joints" of the plant, and they are about an inch apart.

Indianapolis, Ind.

Roman White Hyacinth.

r .- I have a single hyacinth (Roman white) that has grown strong and healthy, from the time it started to grow, until now. It is now in bloom, but there is something about it that I do not like stalks with flowers on, but there are only five or six buds on each stalk. Tell me what is wrong with it? 2.—I have some of Vick's Velvet Lawn Plant Fertilizer. I should like to know how to use it on flowers ALBERT HIGHLEY.

I.—The plant is probably all right. The Roman hyacinths have but a few flowers to each stem.

2.—Scatter about a half teaspoonsful of the fertilizer on the soil in the pot, and with a small knife or steel fork scratch and work the surface until the fertilizer is mixed with the soil.

Pæonias-Black Calla.

r.-Will you please tell me what you think is the trouble with my pæonies? I bought them three years ago, gave them special attention, and they grow beautifully every summer, but parch and die down in the fall and have not given one flower yet. shall I do with them?

2.—I have a black calla bulb three years old which also springs up in the fall, grows all winter, rests peacefully all summer, but never a lilly has appeared yet. I am getting to think they are non-bloomers.

Am I wrong?

M. P. F.

I.-It is customary for pæonies to remain without blooming for two years after planting, and if the soil is quite rich sometimes even three or four years, and then eventually they bloom annually.

2.—We shall be pleased to hear from anyone having a knowledge of the habits of the black calla who may be able to suggest anything in regard to this case.

Tuberous Begonias-Narcissus.

How shall I treat the tuberous begonia? I have had many of them within the last two years, each year sending for a new supply and putting them out in a warm, sunny place in my yard, where they would be shaded a little, and not letting them have too much sun. They grow an inch or more and then rot off near the ground; some new sprouts and these go the same way.

Again, can anyone tell me why the double white jonquil does not bloom? I have had it for years, and it buds in the spring, but the buds all blast and not one ever comes out. MRS. T. L. W.

Better success with tuberous begonias will probably be had if the tubers are kept in pots of well drained soil. The soil of the bed may be too heavy and

The narcissus bulbs should be taken up and planted in another place in fresh, light, rich soil with good drainage. Where they now are the soil is partially exhausted, and the bulbs are feeble.

Diseased Violets.

I enclose in small box a sample of diseased violet blossoms taken from a cold frame-almost ruined by this disease. It has aphis in it, too. Can they cause this blight, or is it something else, and what is the remedy? I also enclose two blighted leaves which indicate the presence of a disease very prevalent in this section. It begins with a small yellow spot, and finally the whole leaf goes, and they are soft, as if rotten. It extends to the crown of plant. different frame and cannot be the cause of the blighted

Poindexter, Va.

The violets received appeared stunted, withered and yellowish. Without a full knowledge of all the circumstances attending the growth and management of the plants it would be impossible to venture an opinion in regard to the cause of their present condition. A question is asked about aphides. They will do a great amount of damage if unchecked. But why have they been left to themselves when they could easily have been destroyed? The violet disease or spot is well known, and most growers of the plant have it to contend with. It is necessary that great care should be used at all stages of the growth of the plants in regard to watering, regulating the temperature and ventilation. On the first appearance of the disease, or even before, if it is apprehended, the plants should be sprayed with the Bordeaux mixture, and all diseased leaves or plants should be removed and burned.

Amaryllis-Calla-Carnation.

I.-Does an amaryllis want the sun? I have one which is quite old and grows well but never blooms.

3.—What is the best way for watering callas? I have a calla and the leaves turn yellow before they are hardly out.

3.-What is best to do with a carnation in the spring after it blooms? I purchased one in the spring of 1896 and it grew and last winter bloomed. When it came warm I put it out doors, leaving it in crock on the porch, giving it a little water, thinking it ought to rest. Last fall I took it in, cut it back, and some new growth started, but it only grew an inch from the main stem, and then died. M. H. Moscow, N. Y.

r.-Yes, an amaryllis should have a sunny, light place. Let it be fully exposed during the spring and summer, and when the weather begins to get cool in autumn lessen the supply of water until growth stops, and then let the bulb remain dry for the next three or four months. In February or March it can again be started to grow.

2.—Callas cannot well have too much water. A calla tuber that is not satisfactory should be thrown away. It is not worth spending any time with it. Get a new, strong tuber and there will be notrouble.

3.—In the case mentioned it would have been better to have planted the carnation out in the garden in the spring. It could have been cut back and a new growth secured during the summer, and by the last of September it could have been taken up and potted for blooming. But, on the whole, it is better to throw away a carnation plant after it has bloomed and start again with a young plant,

rangement can hardly be said to be laid

out by plan however, if we take plan in

the sense of calling forth study and

thought, to make it the best possible

arrangement for convenience and good

effect. It may be said to comprise a

straight walk from the street to the house,

another straight walk from the house-

walk to the barn and poultry house, and

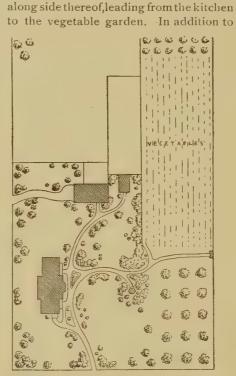
yet another, with straight flower beds

SUGGESTIONS ON GARDEN ARRANGEMENT.

THE presence of handsome homes in a community is one of the highest marks of civilization. Beauty about the home indicates that the home-maker is not only a person of taste, but that he is ready to display that taste for the benefit of others.

Of various means employed for making our dwellings and grounds more charming, there is nothing that yields such large returns for a small outlay as that which

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FIGURES I AND 2-TWO WAYS OF ARRANGING THE SAME FRONT YARD,
STIFFNESS VS. GRACE AND NATURALNESS.

pertains to intelligent gardening. This is apparent in various instances that must occur to every reader, where it is seen, that even a modest house, if it be surrounded with an abundance of flowers, vines, evergreen and other ornamental shrubs and trees, will appear to much better advantage, than will another that may have cost more money, but which is without garden adornments. All eyes are drawn irresistably by the beauty of the one place, while the other is unable to command equal admiration.

Now the object of the present article is not to take up the matter of garden improvement in general, but rather to touch upon one feature of lawn adornment that is by far too generally slighted. Reference is had to the fundamental matter of arranging the grounds with a view to obtaining a great gain in garden effect, at no material addition to the cost, save as taste and judicious action are applied. To illustrate the point, an actual case of grounds is taken, and by means of an improved plat certain principles in effective garden planning will be made clear.

Figure I annexed shows a home plat of two acres situated on a street corner, and laid out as many another such a home is laid out, namely, on the plan of straight lines and regular angles. Such an arso much straightness in walks and beds, the trees and shrubs, in the main, are arranged in straight lines.

From this plan we turn to figure 2 and observe a very striking contrast, in a system of walks and beds laid out on the principle of easy, graceful curves and outlines, and in shrubbery the grouping system. With how much of an improvement in effect this plan might take the place of the other, it may safely be left to any eye of taste to judge; the improvement is obvious.

Do you say: Yes, plan 2 on paper appears much the better one, but would such be the case on the grounds? To this our answer, based on wide experience in this line, must be, that no simple engraving can adequately convey to the mind the real improvement of the one garden over the other as carried out in actual gardening.

Wherein lies the more pleasing qualities of the plan of figure 2? Let us try to discover this with a view of fixing certain fundamental principles of tasteful garden design in our minds, to aid us in better laying out our grounds whatever may be their size and shape.

First, it may be noted that the main advantage of figure 2 over the other is to be found in the presence of grace, variety

and informality throughout. A well proportioned curve is a delight to the eye wherever it is met. Hogarth's celebrated "line of beauty," it will be recalled, represented a line of curves. There is no place in the world where a simple, shapely curve can be made to contribute a finer effect than in your garden walk. A sweep of a score, or a hundred or more, feet is a fine base for a grand mind-satisfying curve. But where the great gain of a beautiful garden curve comes in is that it costs nothing over the stiff walk but the mere laying out.

Along with grace in the walk lines of figure 2, a large measure of variety is likewise found in the same. The human mind does not exist that is without an instinctive appreciation of variety. This quality in our plan deserves a little special notice. The main point in this regard lies in the marked variations afforded by the curves of the place, as already noted, in the contrast with the straight lines as fixed in street and boundary lines, fences, buildings, the orchard rows, etc. Is it not a common sense proposition, that when so many straight fixed lines exist in relation to the grounds we should, when introducing new ones that are not arbitrary, seek to plan them for affording relief from the prevailing straightness instead of adding more straight lines? There can be no two answers to that question. Then let us make the most of our lawn walks by introducing the qualities of grace and relief instead of that which adds straight lines where already an excess of such prevail.

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IN THE SPRING

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The last point to be touched upon is ing shrubs, as well as small evergreen In a day or two the green leaves showed where straight ones and angles are formal, but here we desire to touch upon a matter other than the walks. We refer to the informal lawn planting of figure 2. We say lawn planting because in arranging the vegetable garden and orchard, both of which occupy a sphere of strict

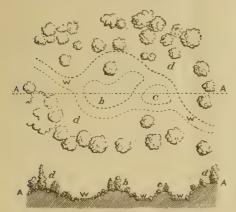


FIG. 3.—A ROCKERY NOOK. SURFACE PLAN WITH CROSS-SECTION VIEW ALONG lpha A. THE LETTERS b, c, d show beds in walls.

utility, straight lines are to be advocated. It is when we come to the lawn that the straight lines in the trees and shrubs of figure I should yield to the informal style of grouping shown in the other plan. With thus having set forth the main principles of effective garden planning, we must for the present leave this subject, but with the assurance to the reader that such principles are fundamental, hence the more fully they are complied with the more satisfactory will be the result, whatever may be the shape or extent of the home garden.

In this connection we desire to present a few thoughts on a form of introducing garden variety that is fascinating to many persons, namely, the garden rockery. Figure 3 represents a rockery with which the writer is familiar, and which affords much delight to its owner and to all observers. This rockery occupies a spot on the line of the garden walk, and is the perfect embodiment of a bit of informal

Throughout this spot the walk is defined by stones of various sizes, and which in some places are in the nature of boulders and elsewhere are large chips. Back from the walks the beds rise slightly from the general surface, as shown in the crosssectioned view.

Some gardeners have the idea that the plants of a rockery should consist only of kinds low of stature, or that creep. This is a mistake. While the many low kinds that can be raised by seed and division, and which are known as "rock plants," are most suitable, especially for the parts of the beds nearest to the walk, yet it is well to employ some stronger growers farther back in the rockery. In the instance here shown, numerous flower-

that of informality in contrast with for- trees, like the Irish junipers and dwarfer mality. True, curved walks are informal Arbor vitæs, spruces and so on, are used, as the lower part of figure 3 indicates. The trailing junipers and such evergreen trailers as the vincas, are excellent in the rockery. It is indeed a peculiarity of the rockery that a larger variety of growths seem appropriately to fit into it, all within a small compass, than in any other style of planting.

> The subject of the rockery ought not to be left without pointing out one principle in construction that sometimes is overlooked. It is the matter of the proper placing of the rocks. Because in a wellbuilt rockery the stones in sight impress one as being small, some builders start out to construct one by using small stones, and merely bedding them slightly into the surface, as shown in the upper part of figure 4. In such a rockery the stones become too easily displaced and frost plays havoc; it never can be satisfactory. The right idea as to the relative size and arrangement of the stones is shown in the lower part of the same figure. Thus arranged the frost will not displace them, while the soil-pockets provided between

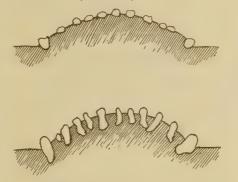


FIG. 4.—ROCK MOUND SHOWING BED (UPPER CUT) AND GOOD FORMATION

the stones afford, with the coolness imparted by the latter, a most congenial spot for all plants usually classed as rock

JAPANESE MORNING GLORIES.

REMOVING an apiary left a long stretch of rich ground betwixt the lawn and the garden. There was quite a dispute as to what plant or shrub would be most effective as a dividing line between the two. All at once we thought of the Japanese Morning Glories, and forthwith went to work to put up a pretty wire trellis, over which soon clambered these vines with their wonderful bloom. The seeds are easily sprouted, and we found the quickest and the best plan to soak them thoroughly, spread over the top of a box filled with loam, and cover with a wet cloth. In two days they had swollen and showed the sturdy white roots coming. We then lifted them carefully and set to their places along the wire trellis, covering lightly with rich loam.

and soon the trellis was covered over with the healthiest of vines. We mulched heavily as the sun parched the ground about the young plants almost as soon as we watered it.

It is impossible to describe the beauty of these gorgeous blossoms or the gay and brilliant screen they made all the summer long. Everybody wanted seed saved, and many came just to see the flowers for the first time. We had, from three packets of seed, more than twentyfive different colors and kinds. A neighbor who did not feel like putting up a wire trellis, used tall, shapely brush instead, and I do not know but that her display was even finer than ours, and was certainly more unique. The seed should not be put out until all danger of frost is

A friend in far away Japan, one of our missionaries, writes back to us that even in that flower-loving land no flower is more beautiful or more gorgeous, or more highly prized. HELEN KERN.

LEGEND OF THE TEA PLANT.

Dharma, the ascetic priest, was the son of a king of India. He went into China and for the space of nine years he remained in contemplation in a temple. Later he went to Japan, and he died on Mount Katavka. He imposed upon himself, as the first rule of his life, privation from sleep. One day, indignant at falling asleep, he cut off his eyelids and threw them away as miserable sinners. From the spot where the eyelids had fallen sprang up a bush which is the tea plant, affording the perfumed beverage which chases away sleep.



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House plants need air.

Dirty house plants will never do.

Don't make the garden too small.

We believe the elm stands first as a street tree.

Are your young trees rubbing posts for animals?

A city girl thought the birches were white-washed.

French florists announce double-flowering varieties of gladiolus.

"I have found ten rods to be better than two as between hen house and garden."—S.

A hint from the thrifty truck gardener: how they do lay in the manure yearly.

Clover in the orchard, at intervals of three or four years, will supply the needed nitrogenous matter.

In the matter of elaborate flower stores for the sale of cut flowers, American florists beat the world.

"An insult to the farmer" is what the New York Mail and Express rightly calls the free seed sop voted by Congress.

The hardiest border plant may be killed by successive freezing and thawing during March. Remedy—A slight mulch over the roots.

A pinch of lettuce seed in the March hotbed will give you plants for the open ground a month later, and provide no end to early salad.

There is no need to fear venturing on cabbage seed in the early hotbed, but when it comes to tomatoes and peppers that is quite another thing.

Cabbage on Clover Sod. A most successful raiser of cabbage on a large scale for market informs us, that other things equal, he prefers to plant on turned down clover sod. He top dresses liberally with manure in the spring before the plants are set.

Fine Culture for Bulbs. To give an idea of the care given in the great nurseries of Holland in growing hyacinth and other bulbs, a recent traveler says that the bulbs grown for sale are lifted by hand to avoid the injury that would follow in case of spade digging.

Yuccas in Groups. On the writer's lawn there is a bed of nine Yucca filamentosas that is an agreeable feature. This is because the pointed sabre-like leaves are so distinct that they form a pleasant relief to other objects and foliage in the garden. This plant deserves to be more generally grown thus in groups. It is perfectly hardy and improves with age for a number of years, after which it may be reset. The plants prefer a well-drained soil, hence to grow them on a slope or mound suits them exactly, although on the writer's grounds they are grown on the common level. Besides the striking foliage there are handsome spikes of creamy-white flowers, several feet in height, which appear in early summer. Altogether the yucca is a hardy plant to be strongly recommended.

Early Beets. In deciding on kinds one must keep in view the object for which the crop

is grown. Take the Early Bassano, it is a superior variety for home use, but does not go off as well as some in the markets, because the flesh is not so distinctly colored, the light and dark rings do not impress the eye quite so well. In the markets, therefore, the early blood beets are found to be the best sellers, not because of better quality, but for the brightest colors. When vegetables are grown to sell one must consult the eye quite as much as the palate. Growers too often overlook the fact that beets are rank feeders; nothing like the best quality can be raised unless the sowing is done on soil that is heavily manured each season. In a rich soil beets are one of the most profitable of market crops. By sowing the seed thickly and then thinning the drills, using the pickings as early greens, one really accomplishes double cropping from one seeding.

Sweet Pea Culture. I have been asked to give my rules for growing sweet pea for the finest flowers, and the longest season of bloom. One:—Always sow the seed early. Peas are the first seeds I put in the ground and this just as soon as the soil can be worked. The advantage in this is that the plants need the strength that comes from early spring growth in order to carry them thriftily through hot weather. Two:—Prepare the soil deeply and include some bone in the manure. Wood ashes also



AILANTHUS GROWN FOR PALM-LIKE EFFECT.

are excellent, as they keep the soil damp. Three: - Sow in trenches something like oldfashioned celery trenches, about four or five inches deep. The seed should be covered with two inches of soil at the first, and then fill in almost but not quite enough soil in the trench later as growth proceeds, to bring the top even. The slight depression is useful for summer watering in case of drouth. Four:-In the summer mulch the line of peas, and apply water liberally at times if the weather is dry. Lastly: -Pick all flowers before they drop, in order to prevent seed bearing, which is fatal to continuous bloom. Follow this course and any one can grow sweet pea to perfection, which means to have plenty of flowers the season through.-Sarah Hewitt, Worcester, Mass.

Protection of the Peach. Experiments have been made in protecting peach buds from freezing by whitening the branches, that are very interesting. Such experiments at the Agricultural Station, Columbus, Mo., have proven to be measurably effective in saving the crop. The whitening is done by spraying the twigs and buds with whitewash. The efficiency of this protection is easily comprehended as we consider that a whitened surface reflects heat, hence the growth of whitened buds is retarded as compared with those that are not treated. The fact is pointed out that the purple coloring matter of peach twigs is well suited to absorbing heat. In the experiments at the Columbus

station it has been found that whitened buds blossom three to six days later than those untreated. Eighty per cent. of whitened buds passed the winter safely as against only twenty per cent. of unwhitened buds. Such a means of protecting the peach is so sensible and so easily within the reach of every grower, that it should come into general use, even with those who have but a few trees.

Highly Decorative Ailanthus. One of the easiest and most effective ways of growing

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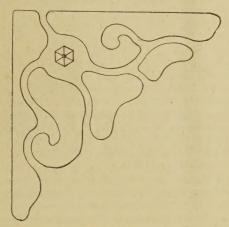
the ailanthus is by renewing the head every year. This consists in annually cutting down the stems to near the ground, and letting a simple-stemmed growth appear yearly, as shown in the engraving. In this way an effect may be gained that will be as fine as that of a high-priced palm, which requires wintering in a greenhouse. From a well established root a stem ten feet high may be grown in one season, and this will bear immense compound leaves four to eight feet in length that will at a little distance resemble a magnificent date palm. All that is needed to accomplish such an end is to have the ground very rich, and then rub off all buds but one. The growth of suckers likewise should be prevented by rubbing such off as they appear. It is the ideal way of treating this peculiar Chinese plant. Another fine way of growing this ailanthus is to plant it in the center of a border, and cut back the growth every fall or spring to within six inches of the ground. In this way there will be a sort of thicket of the shoots, which as a background to some lower plants set

except the annual cutting back in March.

A Corner Flower Garden. In answer to an inquiry for planning one corner of a lawn as a flower garden the following design is submitted: It is arranged in the irregular order, for the reason that in this way it is both more ornamental and restful than if the formal style was

between the ailanthus and the grass will prove

extremely effective, with absolutely no bother



FLOWER GARDEN FOR CORNER OF LAWN.

adopted. The plan is suited to any kind of flowers, such as annuals, bulbs, or greenhouse plants, or to a combination of these. It likewise answers well for the hardy shrubs by laying it out on an enlarged scale, to have the wider parts of the beds not less than twelve feet across. In that event some space may be left here, and these to be filled in with seed-grown flowers, bulbs, etc. In case of planting it as a hardy shrubbery, by massing some of the tallergrowing kinds, like lilacs, mock oranges and altheas centrally in the beds, so as to obscure the walks in part as seen from any given point, the effect will be all the more delightful. In that event, compact as the arrangement is, there will always be present in the writer's mind the irresistable charm of desiring to know what is beyond, and thus lead him to explore its various parts. The garden thus leaves a much better impression than if every detail of the plan can be taken in with one sweep of the eye. It is seen that an arbor or garden seat is located centrally in the plan. For this a bed of bright flowers might be substituted with no material loss of beauty. Three walks lead to the arbor from the lawn, and a fourth one extends back

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into the vegetable garden. These walks are nothing else than lawn and are to be kept under the mower the same as the other parts of the grass plat. What the garden is designed to consist of is merely in the cutting of the beds into a present lawn, and this was our enquirer's idea. The beds are designed to be about two or three inches lower than the surrounding grass level at the edges, and then to be slightly crowning at the center.

**

THE HERBACEOUS PÆONIES.

PÆONIES are among the noblest and most beautiful of hardy plants, and quite indispensable for the flower garden or mixed border. They may be divided into two groups or sections, viz., those which are allied to the tree pæony-Pæonia Moutan, and which are shrub-like in habit and manner of growth, and those of a herbaceous nature. The latter are so well known as to require no descriptions and in gardens and flower borders are great favorites, on account of their showy flowers, great hardiness, freedom from insect, and other pests, as well as the little care and attention necessary to grow them, while for a brilliant display of flowers during the months of May and June, there is nothing that can equal them. Not only do they combine stateliness of growth and beauty of color, but in many varieties the blossoms possess a delicious fragrance. Although they have been cultivated for many years, yet in no class of plants has there been so great improvements, in size, form and color of the flowers which vary from pure white to all shades of pink and red. The roots of these pæonies are composed of carrot-like tubers, which, when they have obtained a sufficient size, can be carefully separated, and in this way the supply can be increased. They are also perfectly hardy, never suffering from any extreme of heat or cold, and succeed well in any soil and situation unless so wet that the water will lie on the surface during the winter and spring months. When the ground becomes frozen in December they should be well mulched with good stable manure, and as much of this as possible should be dug in around the plants the ensuing spring. Propagation is effected by a careful division of the older plants, and this operation should be performed as early in the spring as possible, but a strong growth

must not be looked for the first season, nor should flowers be looked for, but the second season strong plants and flowers may be expected. Of the many varieties in cultivation at the present day the most desirable and distinct can be procured at a low cost.

Charles E. Parnell.

Floral Park, N. Y.

**

SOWING TUBEROUS BEGONIA SEED.

Directions for raising begonia tubers from seeds are thus given in a late issue of the *Journal of Horticulture*:

Prepare pans, in preference to pots, by carefully draining, covering the cracks with moss, on this placing some coarse soil, and finish off with about two inches of a very fine mixture of loam, and either leaf soil or peat in equal parts with a little sand added. The soil used ought to be perfectly free of worms and insects generally, even if this necessitates well roasting it over a fire. Make the surface perfectly level and firm, and then well moisten it either by partly immersing in water or by gentle syringings. This to be done at least six hours prior to sowing the seed. Do not surface over with river sand, as the latter does not afford the tiny seedlings, newly germinated, any root-hold, and numbers of them perish accordingly. Sow the seeds as carefully and thinly as possible, for patches of seedlings are extremely liable to damp off wholesale.

Hot-beds, unless perfectly free of worms, are bad places, though most often selected, for be-The safest and best place for the gonia raising. pans are shelves suspended, not far from the glass, in a forcing house or plant stove. them closely with squares of glass, and the lat-ter with a good thickness of moss or brown paper. Also protect the pans from sunshine Never once must the soil in the pans be allowed to become dry, nor should they be watered through a can. A short period of dryness would through a can. A short period of dryness would prove fatal to the sprouting seeds, and however gently water may be applied on the surface, the chances are this would have the effect of dislodging and spoiling many of the seeds or tiny seedlings. Whenever the soil is approaching dryness immerse the pans in a bucket or tank of tepid water just deep enough for the moisture to soak upwards without at the time actually reaching the surface.

The seeds sometimes germinate in a fortnight or so, the time being largely determined by their age; directly the tiny seed leaves are detected admit the light gradually, and also slightly block up the glasses, taking good care that no sunshine shall reach the begonias. By way of a preventive of damping, either wipe or turn the glasses every morning. The seedlings will require to be pricked out long before they are large enough to be picked up with the finger and thumb

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A NEW RACE OF CHRYSAN-THEMUMS.

A gardener, Martin Cahuzac, at Bordeaux, France, has cross-fertilized the Chinese chrysanthemum with the dahlia, and has presented the editors of La Semaine Horticole specimens of the flowers ofsix hybrid varieties of chrysanthemums. As the flowers when received were not in good condition no proper judgment could be passed on their metits, but the opinion is expressed in regard to two downy varieties that when fresh they may be very pretty; one of them is a creamy yellow and the other a lilac rose on the upper side of the petals and a pearl gray underneath. A third variety presents a curious mixture of large and small petals; the small ones cut as fine as threads, giving the flowers quite a new stamp,

* * FORCING TOMATOES.

Bulletin No. 125, from the New York State Agricultural Experiment Station, is on the subject of forcing tomatoes in the greenhouse.

In the training experiments plants grown to single stem were compared with plants trained to three stems. There was but little difference in the average size of the fruits of the two lots of plants, but the results show a gain for the single-stem plants in that they give a larger yield of early ripening fruit as well as a larger total vield.

In the benching experiments, plants planted in the soil on the benches in the ordinary manner were compared with plants that were not removed from the two-inch pots, but were plunged in the soil on the benches. It is claimed by some that by plunging the plants in the pots, the growth is checked and this results in earlier frnitfulness. The results show that the ordinary method of planting is equally satisfactory except that in some cases plants that were plunged in pots and trained to single stems gave a little larger yield than similar plants not in pots.

The bulletin is illustrated with some good cuts which add to its value and attractiveness. The results will be of special interest to those persons who grow vegetables under glass. A copy of the bulletin may be had upon application to the Agricultural Experiment Station, Geneva, N. Y.

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PLANTS TO CHECK BLEEDING OF WOUNDS.

The bruised fresh leaves of the milfoil or yarrow, Achillæ Millefolium, having astringent properties, are sometimes employed in domestic practice to arrest the bleeding of wounds. Valerian, Valeriana officinalis, is also similarly used. A French journal has recently stated that the leaves of the geranium, Pelargonium zonale, are also effective for the purpose mentioned. As these last are most likely to be within immediate reach of almost everyone, it may be well to note this property relating to them.



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within five years even, have been "improved" until the inventor himself would scarcely recognize them. Page Fence began so near right that after twelve years its competitors are content to imitate as closely as they dare.

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See page 64 of February number.

SILK FROM LEAVES AND WOOD.

Until the present time, says La Semaine Horticole, the silk worm has enjoyed the monopoly of supplying the human race with silk. This privilege, it now appears, is about to be taken away. The Count Hilaire de Chardonnet, the inventor of the artificial process for making silk, has discovered that the silk worm is only a charlatan who does not really make anything. What it simply does is to mix the vegetable fibre contained in the leaf of the mulberry, on which it feeds, with a gummy secretion, and spins or draws out this matter into a thread.

M. de Chardonnet states the real silk fabric is found in the mulberry leaf, and that the worm does nothing more than to dole it out.

The inventor has made a machine to macerate the leaves and the young wood of the mulberry, the orange and some other trees which have been found suitable, and he treated them with a preparation the composition of which is exactly the same as that of the secretion of the worm.

By means of hydraulic presses and a mechanism with which to cool the mixture by electricity, an artificial silk has been produced quite surpassing the lustre of the ordinary silk and at a quarter of the expense.

a quarter of the expense.

Besides, it is stated that nearly all the light woods fulfill the necessary conditions for the manufacture of the fabric as well as the mulberry.

A NEW CATALOGUE.

The Page Woven Wire Fence Company's handsomely illustrated catalogue shows many styles of their fences and contains much valuable information about setting End and Anchor posts. The lithograph of the manufactory, at Adrian, Michigan, exhibits something of its magnitude. There is no doubt but what they manufacture and sell annually more woven wire fence than all others combined. Their fence is the standard and is used in almost every country on the face of the earth. They have, within the last five years, manufactured enough fence to entirely encircle the earth, and average twelve horozontal wires high, and used about five hundred thousand (500,000) miles of wire. This catalogue will be sent free upon application to Page Woven Wire Fence Company, Adrian, Michigan.

MICROSCOPICAL PUBLICATIONS.

The Microscope, the popular journal of microscopy, which has been published since 1881, is now discontinued, the December number of 1897 being its closing issue. The Microscopical Publishing Company, of Washington, D. C., which has published it, and also the American Monthly Microscopical Journal, will continue the publication of the last named, and the subscription price of it will hereafter be but one dollar a year. To those not acquainted with the Microscopical Journal, and who may desire a publication of the kind, it can be unreservedly recommended.

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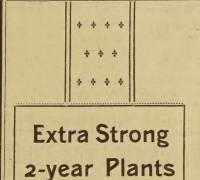
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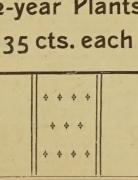
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Lucy Ashton—Pretty white blooms with pink edges; free flowering, and a free grower with erect shoots.

Lady Penzance—Beautiful soft copper tint, with peculiar metallic luster, the base of each petal a bright yellow; very free flowering, with delicious perfume.

Level Penzance—Soft shade of favor passing to emer.

Lord Penzance—Soft shade of fawn, passing to emerald-yellow at center, often toned with delicate pink.

James Vicks Sons, Rochester, N. Y.



THE BIRTH OF THE ROSE.

In the following beautiful idyl, which was the production of the German poet and artist, Gessner, Bacchus is represented as speaking:

I was pursuing a young nymph; the beautiful fugitive was flying with a light pose upon the flowers, and looking back she was laughing

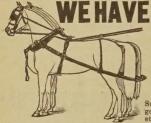
mischievously on noticing me tottering along | and following her with an unsteady step. Surely, I should never have succeeded in overtaking this beautiful creature, if a fluttering piece of her robe had not hindered her in a thorn bush. Enchanted I approached and said to her, "Do not be so much frightened, I am Bacchus, god of wine and pleasure, eternally young." Then,

seized with respect, she dropped her eyes and blushed. As a mark of my gratitude to the thorn bush, I touched it with my wand and commanded that it should be covered with flowers, the lovely red color of which should imitate the blushes that had spread over the cheeks of the nymph. I commanded, and the rose was born,

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